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CENTRAL INTELLIGENCE AGENCY

OFFICE OF NATIONAL ESTIMATES

3 September 1957

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STAFF MEMORANDUM NO. 44-57

SUBJECT: Soviet Long Range Aviation

1. The attached paragraphs were prepared in order to arrive at an O/NE Staff view of the probable course of the Soviet heavy bomber program prior to the receipt of agency contributions to NIE 11-4-57. These paragraphs represent our current thinking regarding the approximate order of magnitude of the force between now and mid-1960, and are subject to adjustment as argument is offered or if more conclusive evidence is received. A detailed explanation of the factors taken into account will be presented to the Board at a Staff briefing to be given on Thursday, 5 September.

2. This memorandum has been discussed at considerable length with representatives of O/CI, O/RR, and O/SI. The Board should note that there is not full agreement among CIA analysts as to <u>why</u> the Soviet heavy bomber program is proceeding at its present slow rate. Differences of opinion will be explained at the briefing.

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SOVIET LONG RANGE AVIATION

1. The capabilities of Soviet Long Range Aviation have continued to increase during the past year. Its estimated strength in bomber aircraft has grown from about 1,300 to about 1,500. The number of bomber regiments has also increased, although at a somewhat slower rate than during the preceding year. Retirement or transfer of obsolescent BULL piston medium bombers has continued as more modern aircraft have been assigned to operational units. The trend in training activities during the year is believed to have been toward larger-scale operations and longer-range flights out of home base areas, including flights to potential forward staging bases. Inflight refueling has been under development for both the BISON jet heavy bomber and the BADGER jet medium bomber, apparently using convertible tanker-bomber versions of these aircraft, and is probably now operational for at least the BISON. Finally, facilities apparently suitable for storage of special weapons have been identified in the vicinity of certain Long Range Aviation home bases.

2. However, there is now considerable evidence that Soviet production of heavy bombers has fallen short of even our reduced

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estimate of a year ago, and jet medium bomber production and strength in operational units has exceeded our expectations. While current evidence is inadequate to establish positively the total cumulative production of heavy bombers in the USSR, our best estimate is that as of mid-1957, only about 65 BISON jet heavy bombers and 50 BEAR turboprop heavy bombers had been produced, with no more than 50 BISONs and 40 BEARs assigned to operational units. At the same time, BADGER production has continued at a high rate, and we now estimate that there were approximately 850 in Long Range Aviation units as of mid-1957.

3. No additional Soviet production facilities are known to have been committed to the heavy bomber program, and production at the two present facilities has been at relatively constant rates which remain considerably below estimated plant capacities. Early production rates are thought to have been adversely affected by certain airframe modifications and production difficulties noted during 1955 and the first half of 1956, but there has been no comparable evidence to account for the low production of the past year. Limited evidence on heavy bomber flight characteristics indicates that their performance is reasonably satisfactory, although there is as yet no evidence that improved engines are being installed. With regard to Soviet production plans for the immediate future, there is evidence that

additional aircraft plants estimated to be capable of producing heavy bombers are either continuing in the BADGER program or preparing to produce transport aircraft.

4. It is possible that the explanation for the continued low rates of BISON and BEAR production lies largely in the field of technical problems beyond the control of Soviet planners. Gaps in our intelligence are such that the heavy bomber program may still be encountering difficulties of which we have no evidence, such as continuing production bottlenecks or unsatisfactory performance of critical components. It is also possible that large-scale production has been delayed pending the availability of higher thrust engines or other developments expected to improve performance characteristics. Nevertheless, Soviet BADGER production experience and the length of time already devoted to the heavy bomber program, together with the factors discussed in Paragraph 3 above, lead us to believe that the heavy bomber program has probably reached the stage where technical difficulties are probably not a serious delaying factor.

5. It therefore seems more probable that Soviet planners have deliberately taken the calculated risk of pursuing relatively modest or stretched-out heavy bomber production. We see in the evidence

to date no reason to change our estimate that the USSR has a military requirement for heavy bombers in sufficient strength, not only to re-inforce the deterrents to US initiation of nuclear warfare, but also to be capable of effective intercontinental nuclear attack in the event of general war. In our view, if the Soviet planners have taken a calculated risk with regard to heavy bomber production, they would have based their decision on such factors as the present unlikelihood of general war, the great expense of a large-scale heavy bomber production program, the existence of a reliable jet medium bomber force with one-way intercontinental capabilities for interim use in emergency, and, possibly, their expectation that significantly improved intercontinental delivery systems will become available in a few years.

6. In any event, we believe Soviet planners will probably not risk significantly reducing the over-all size of their long-range bomber force until the USSR has acquired a substantial nuclear delivery capability with advanced weapon systems. It is our present estimate that during the 1959-1961 time period the USSR can probably achieve initial operational capabilities with supersonic medium bombers, advanced air-to-surface guided missiles, and surface-to-surface ballistic missiles of intermediate and intercontinental ranges, but it is highly unlikely to have acquired substantial capabilities with such

systems as early as mid-1960. Therefore, in re-estimating the future strength and composition of Soviet Long Range Aviation, we have considered that present over-all strength and recent trends in unit structure provide a valid basis for judging the size of the force through mid-1960. To this base we have applied moderately rising heavy bomber production curves which would not necessarily require the commitment of additional production facilities. We have also taken into account recent trends in medium bomber production and strength, which suggests that the USSR contemplates a BADGER force approximately equal to its earlier strength in BULLs. The mid-1957 estimate given below can be taken with a high degree of probability; estimates for subsequent years are subject to increasing uncertainty.

SOVIET LONG RANGE AVIATION

Actual Strength in Operational Units

	Mid-1957	Mid-1958	Mid-1959	Mid-1960
Jet Heavy Bombers	50 BISON 1/	100 BISON	275-375 3/	400-550 3/
Turboprop Heavy Bombers	40 BEAR 1/	100 BEAR		
Jet Medium Bombers	850 BADGER	1,000 BADGER	1,100 4/	1,100 4/
Piston Medium Bombers	550 BULL	400 BULL	175 BULL	--
	1,490 (63 regts) 2/	1,600 (67 regts)	1,550-1,650 (65-70 regts)	1,500-1,650 (65-70 regts)

1/ We estimate that there were no more than this number of BISONs and BEARs in units as of mid-1957.

2/ Excluding two BADGER regiments which may have been transferred to Naval Aviation within the past year.

3/ Includes BISONs, BEARs, improved versions of these aircraft, and tanker version of BISON.

4/ Includes BADGERs, tanker version of BADGER, and beginning about 1959 may include a new supersonic medium bomber.

7. Because of the many unknowns inherent in a period of rapidly-changing military technology, it would be misleading to make a numerical estimate of the size and composition of Soviet Long Range Aviation

beyond mid-1960. The USSR will almost certainly re-evaluate its requirements for medium and heavy bombers as more precise information becomes available on the timing of Soviet advances in long-range weapon systems, the accuracy and reliability of advanced systems, the future development of US and Allied defensive capabilities, and other factors. On the basis of our present estimates of Soviet technological capabilities, we believe a future Soviet re-evaluation of long-range bomber requirements might result in a downward trend in over-all numerical strength beginning some time in the 1960-1962 time period, and that the force might then tend toward a more even balance between medium and heavy bomber types.